AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

Please cancel claims 2, 3, 4, 5, 9, 11, 15, and 16 without prejudice.

<u>Listing of claims:</u>

1. (currently amended)   A computer-implemented method for automating operations of a computing arrangement coupled to a message processor, <u>wherein the computing arrangement includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system,</u> comprising:

    <u>defining a plurality of command queues in a pattern database, each command queue having a priority level relative to the other command queues and having storage available for a plurality of commands;</u>

    defining in the ~~establishing a~~ pattern database ~~including~~ a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and <u>one or more</u> instructions<u>, wherein each of the one or more instructions specifies</u> ~~for~~ queuing <u>of</u> a command to a <u>designated one of the</u> command queue<u>s</u> ~~having storage available for a plurality of commands~~;

    receiving message character strings at the message processor;

    searching the pattern database for pattern definitions that match the message character strings; ~~and~~

    ~~for the pattern definitions that match the messages, adding associated commands to the command queue in processing the response definitions; and~~

    <u>for each pattern definition that matches a received message character string and in response to an instruction associated with the pattern definition and that designates a selected command queue, adding the command specified by the instruction to the selected command queue; and</u>

    ~~dequeuing commands from the command queue and issuing the commands to the computing arrangement.~~

___ for a pattern definition that matches a command prompt message character string from the data storage system, dequeuing commands from the command queues in order of the priority levels of the command queues and submitting the commands to the data storage system.

2. (cancelled)

3. (cancelled)

4. (canceled)

5. (cancelled)

6. (currently amended)   The method of claim 1 [[5]], wherein the plurality of pattern definitions includes a first definition matching a selected first message character string from the host, the first message character string associated with a selected high-level operation of the data storage system, the pattern definitions further including a plurality of definitions matching selected messages message character strings from the data storage system generated in performing the high-level operation and having associated responses that are commands required for the high-level operation.

7. (currently amended)   The method of claim 6, further comprising:

establishing a terminal emulation session between the operations processor and the data storage system;

transmitting the command prompt messages message character strings from the data storage system to the operations processor; and

submitting the commands to the data storage system via the terminal emulation session.

8. (original) The method of claim 1, further comprising:

defining the command queue as a character string; and

adding character strings representing the commands to the command queue and delimiting the character strings with a selected character.

9. (cancelled)

10. (currently amended)   The method of claim 8 ~~9~~, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, and the plurality of pattern definitions includes a first definition matching a selected first message <u>character string</u> from the host, the first message <u>character string</u> associated with a selected high-level operation of the data storage system, the pattern definitions further including a plurality of definitions matching selected messages from the data storage system generated in performing the high-level operation and having associated responses that are commands required for the high-level operation.

11. (canceled)

12. (currently amended)   The method of claim 8, wherein the computing arrangement further includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system, further comprising:

establishing a terminal emulation session between the operations processor and the data storage system;

transmitting the command prompt ~~messages~~ <u>message character strings</u> from the data storage system to the operations processor; and

submitting the commands to the data storage system via the terminal emulation session.

13. (currently amended)   An apparatus for automating operations of a computing arrangement coupled to a message processor, <u>wherein the computing arrangement includes a host data processing system coupled to a data storage system, and an operations processor coupled to the host and to the data storage system,</u> comprising:

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____means for defining a plurality of command queues in a pattern database, each command queue having a priority level relative to the other command queues and having storage available for a plurality of commands;

means for defining in the ~~establishing a~~ pattern database ~~including~~ a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and one or more instructions, wherein each of the one or more instructions specifies ~~for~~ queuing of a command to a designated one of the command queues ~~having storage available for a plurality of commands~~;

means for receiving message character strings at the message processor;

means for searching the pattern database for pattern definitions that match the message character strings; and

means, responsive to each pattern definition that matches a received message character string and responsive to an instruction associated with the pattern definition and that designates a selected command queue, for adding the command specified by the instruction to the selected command queue; and

____means, responsive to a pattern definition that matches a command prompt message character string from the data storage system, for dequeuing commands from the command queues in order of the priority levels of the command queues and submitting the commands to the data storage system.

~~means for, responsive to the pattern definitions that match the messages, adding associated commands to the command queue in processing the response definitions; and~~

~~means for dequeuing commands from the command queue and issuing the commands to the computing arrangement.~~

14. (currently amended)   A computing arrangement having automation of complex manual operations, comprising:

a host data processing system;

a data storage arrangement coupled to the data processing system;

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a pattern-response database configured with a plurality of command queues, a plurality of pattern definitions, and a plurality of response definitions, each command queue having a priority level relative to the other command queues and having storage available for a plurality of commands, each pattern definition being associated with one or more associated response definitions, and one or more of the response definitions including one or more commands and one or more instructions, wherein each of the one or more instructions specifies ~~for~~ queuing of a command to a designated one of the command queue~~s having storage available for a plurality of commands~~;

a message processor coupled to the pattern-response database, the host system, and to the data storage arrangement, the message processor configured to search the pattern-response database for pattern definitions that match input message character strings, for each pattern definition that matches a received message character string and in response to an instruction associated with the pattern definition and that designates a selected command queue, add the command specified by the instruction to the selected command queue ~~add associated commands to the command queue in processing the response definitions for pattern definitions that match the input message strings~~, and for a pattern definition that matches a command prompt message character string from the data storage system, dequeue commands from the command queues in order of the priority levels of the command queues and submit the commands to the data storage system ~~dequeue commands from the command queue and issuing the commands to the data storage arrangement~~.

15. (cancelled)
16. (cancelled)

17. (new)   A method for automating operations of a computing arrangement coupled to a message processor, comprising:

defining a plurality of command queues in a pattern database, each command queue having storage available for a plurality of commands;

defining in the pattern database a plurality of pattern definitions and response definitions, each pattern definition being associated with one or more associated

response definitions, and one or more of the response definitions including one or more commands and one or more instructions, wherein each of the one or more instructions specifies queuing of a command to a designated one of the command queues;

receiving message character strings at the message processor;

searching the pattern database for pattern definitions that match the message character strings;

for each pattern definition that matches a received message character string and in response to an instruction associated with the pattern definition and that designates a selected command queue, adding the command specified by the instruction to the selected command queue; and

dequeuing commands from the command queues in a selected command-queue-relative order and submitting the commands to the computing arrangement.

18. (new) The method of claim 17, wherein each command queue has a priority level relative to the priority level of the other command queues, and the dequeuing step further comprises selecting a command queue for dequeuing a command based on the priority levels of the command queues.

19. (new) The method of claim 18, wherein the selecting of a command queue further comprises selecting a command queue having a lower priority level over a command queue with a higher priority in response to the command queue with the higher priority being empty and the command queue with the lower priority being non-empty.

20. (new) The method of claim 17, further comprising: for a pattern definition that matches a command prompt message character string from the data storage system, dequeuing commands from the command queues in order of the priority levels of the command queues and submitting the commands to the data storage system.